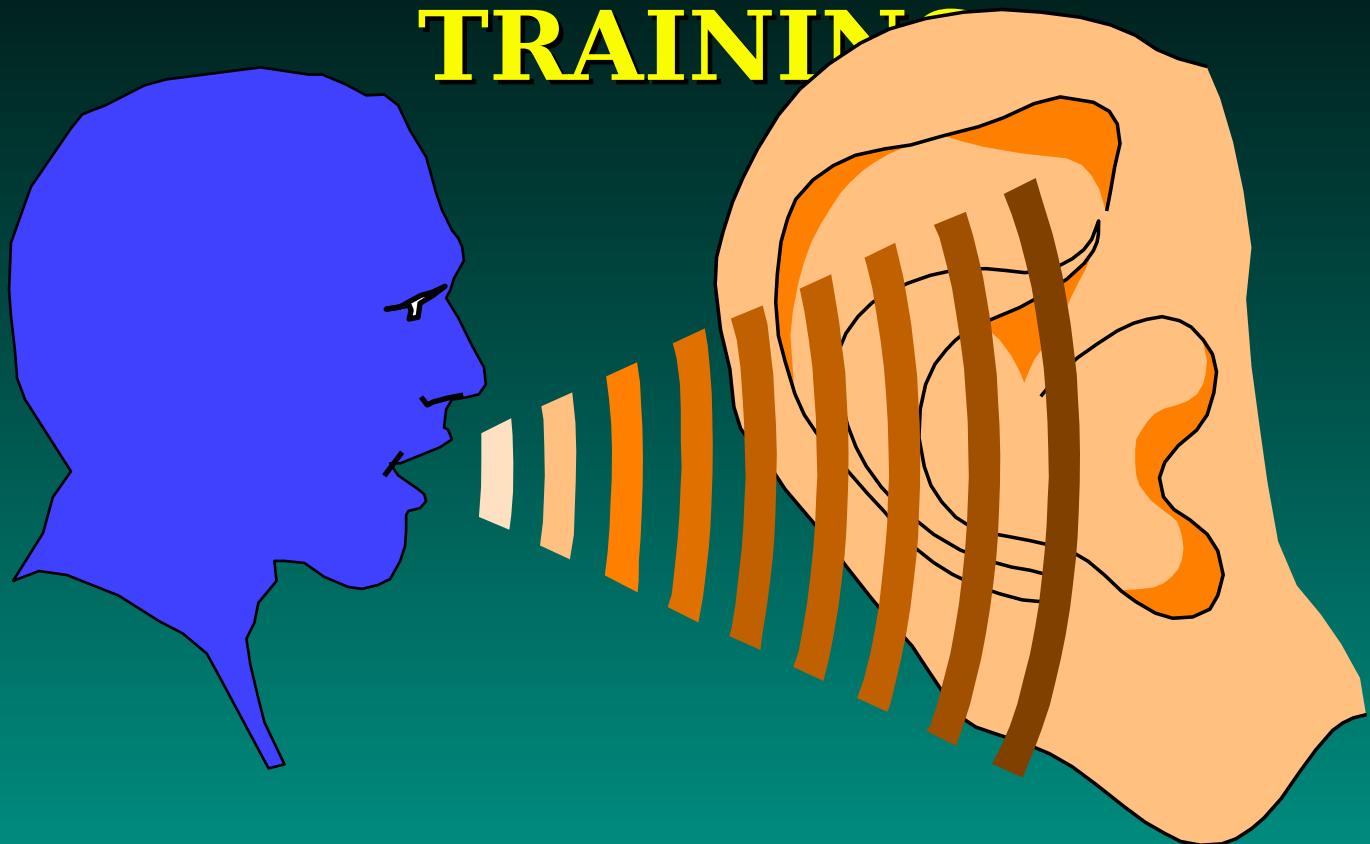


# **HAZARDOUS NOISE/HEARING CONSERVATION TRAINING**



# **AFOSH STD 161-20, Hearing Conservation Program**



# **Overview**

- AF Hearing Conservation Program
- Noise Induced Hearing Loss
- Recognizing Hazardous Noise
- Symptoms of Overexposure
- Hearing Protection Hearing Conservation Program Requirements
- Failure to Comply

# **AF Hearing Conservation Program**

## **Purpose and Program Goals**

- **To Protect AF personnel from the harmful effects of hazardous noise through:**
  - **Administrative and Engineering controls, when feasible**
  - **An aggressive occupational health education program**
  - **Providing personnel with protective equipment, when needed**
  - **Motivating personnel to actively participate in the program**
  - **Audiometric monitoring of persons exposed, to detect hearing loss early**

# **AF Hearing Conservation Program**

## **Administrative and Engineering controls**

### **■ Administrative controls**

- Limiting time of exposure**
- Requires specific guidance from Bioenvironmental Engineering**

### **■ Engineering controls**

- Substitution of equipment**
- containment of source (enclosing and soundproofing)**

# **AF Hearing Conservation Program**

## **Program Responsibilities**

### **■ Wing Safety:**

- Assists in assessment of the ability of a hearing impaired individual to satisfactorily perform tasks without undue risks to self or others**

### **■ Director of Base Medical Services:**

- Ensure medical recommendations restricting persons from hazardous noise duties are properly made**

### **■ Commander Aerospace Medicine**

- Responsible for overall management of USAF Hearing Conservation Program (HCP)**
- Assigns a health care provider as program manager**
- Ensures duty restrictions are appropriate**
- Place shops on the program through the Aerospace Medicine Council**

# **AF Hearing Conservation Program**

## **Program Responsibilities cont.**

- Program Manager/Physical Examinations and Standards
  - Conducts physical examination portion of program, to include:
    - Fitness and Risk evaluations
    - Request for Hearing Conservation Center and Hearing Conservation Diagnostic Center consultations
    - Makes medical recommendations for all persons routinely exposed to hazardous noise
- Chief Bioenvironmental Engineering
  - Performs routine noise surveys to identify hazardous environments
  - Informs shop supervisor of results in a written report
  - Provide Public Health with info necessary for education and health monitoring requirements

# **AF Hearing Conservation Program**

## **Program Responsibilities cont.**

### **■ Chief Public Health (PH)**

- Ensures all personnel routinely exposed to hazardous noise are properly identified**
  - Ensure personnel receive routine audiograms**
  - Tracks persons referred to HCC and HCDC**
- Provide Job Capability Assessment to program manager upon request**
- Fit individuals with ear plugs**
- Provide initial training to all employees routinely exposed and annual training to supervisors**
- Assist supervisors (technically) with annual training requirements**
- Conduct periodic site visits to assess compliance with program directives**

# **AF Hearing Conservation Program**

## **Program Responsibilities cont.**

### **■ Supervisors:**

- Ensure their personnel receive initial and annual training**
- Attend annual supervisors training**
- Ensure personnel wear hearing protection**
- Ensure personnel receive required hearing exams**
  - Must be noise free for at least 15 hours prior to initial and annual exams**
    - More, if 40 hour follow up is required**

### **■ Individuals:**

- Comply with all safety requirements**
- Report for medical exams**

# **Standard Threshold Shift in Hearing**

## **■ Temporary Threshold Shift**

- Hearing loss, also called auditory fatigue, represents hearing loss which is recoverable after a period of time away from the noise source.**

## **■ Permanent Threshold Shift**

- Hearing Loss, prolonged exposure to noise results in permanent hearing loss or impairment**

# **Common Misconceptions**

- **“Noise Induced hearing loss can be cured”**
- **Untrue! Once hearing loss becomes permanent, it is irreversible**
- **“I can tell when my hearing is getting bad”**
- **False! Although some hearing losses occur from a single high noise exposure, most occur gradually and you are unable to tell until it is too late.**

# Recognizing Hazardous Noise

**What is Hazardous Noise?**



# Noise

**Noise is commonly defined as any undesirable sound. Unfortunately noise , like many things, can damage the body if there is excessive exposure. The Air Force defines hazardous noise as noise levels greater than 85 decibels (dB). A decibel is an expression of noise levels, 1 representing the faintest audible sound and 120 to 140 is generally considered the threshold of pain.**

# **Examples**

- A soft whisper at 5 feet is about 30 dB
- Conversation at 3 feet is about 60 dB
- A vacuum cleaner at 10 feet is about 70 dB
- A lawn mower is about 90 dB
- Aerospace Ground equipment is 110 dB
- The Average Rock and Roll band is around 115 dB
- A jet aircraft is around 120 dB

# **Routine Exposure to Hazardous Noise**

- An 8 hour equivalent continuous A-weighted sound level greater than 85 dB
- Intermittent (non-impact) noise above 115 dB
- Impulse or impact noise above 140 dB peak sound pressure level

# **How can I tell if I'm being exposed to hazardous noise?**

**When you have to shout at 3 feet (a loud noise at 1 foot) to be understood, you are in hazardous noise**

**Hearing protection must be worn and the time of exposure reduced as much as possible**

# **Are all kinds of noise hazardous?**

**No! The most hazardous is pure tone noise, such as noise in which you can distinguish a particular tone, such as loud music.**

**You may be surprised to know that the least hazardous noise is impact noise, such as a jackhammer produces. This is because the ear gets a 'rest period' between each impact.**

# **Is off-duty noise hazardous?**

**You bet! For instance, a survey conducted in cooperation with the Rolling Stones rock group revealed that rock music is very hazardous.**

**Other off-duty hazardous sources include shooting skeet, model aircraft flying, and walkman radios among others.**

**Remember, being off-duty doesn't mean you're away from noise exposure: don't add to it unnecessarily. The more noise you add, the more hearing you may subtract.**

# Symptoms of Overexposure

- **Initial signs of noise induced hearing loss:**
  - Dullness in hearing or ringing/buzzing in ears
  - Excessive fatigue
- **Interference with communications**
  - Noise which is not intensive enough to cause hearing damage, can still disrupt speech communication. While communication is necessary, the levels of acceptability may vary with the nature of the work involved
- **Annoyance**
  - Different levels of noise and frequency may prove to be annoying while performing certain tasks

# **Symptoms of Overexposure cont.**

## **■ Physical**

- Changes in heart beat and respiration**
- Increased electrical activity - brain**
- Increase in blood pressure**
- Irritable or nauseated**

# **Hearing Protection Devices**

**Hearing protection devices are designed to reduce noise levels above the speech range, resulting in a more favorable listening level.**

- **Types:**
- **Inset Type Ear plugs (designed to provide an air tight seal. There are 3 types:**
  - **Pre-molded: V51R and Triple Flange**
    - Noise reduction 24 dB
  - **Formable: E-A-R**
    - Noise reduction: 35 dB
  - **Custom Molded: made to fit**
    - Noise reduction varies among individuals

# **Hearing Protection Devices cont.**

- **Earmuffs: worn on the outside to reduce the level of noise that reaches the ear**
  - **Noise reduction: (depends on the device and airtight seal between cushion and head) avg 23 dB**
- **Communication Muffs**
  - **For persons who have to communicate in the presence of intense noise**
  - **Noise reduction: (depends on device) avg 23dB. Noise exposure limits may be exceeded by combination of noise and voice**
- **Semi-insert devices (NOT APPROVED FOR AIR FORCE USE)**

# Hearing Protection Devices cont.

## ■ Double Protection

- Used when extremely high noise levels are present which can't be reduced to acceptable levels with single protection
- Noise reduction: you do not get attenuation of the sum of both types of protection. Taking the sum of both and dividing by 1.5 will give you a rough estimate of noise reduction

## ■ NOTE: NR levels may be less because the noise surrounding he head and body may bypass the device through the tissue and bone pathways to the inner ear.

# **Fitting**

## **■ Fitting:**

- Pre-molded ear plugs must be properly fitted by PH personnel

## **■ Care:**

## **■ Reusable Ear Plugs**

- Wash in warm water using hand soap, rinse and air dry
- Clean at least weekly
- When plugs harden, deteriorate, or no longer form an airtight seal; replace them

## **■ Earmuffs**

- Clean foam cushions just like reusable ear plugs
- When not in use, store them in the open to allow air drying

# **Fitting cont.**

- **Issued by Public Health**
- **Stop by when needed**
  - Bldg. 305
  - **Office hours: Monday-Friday 0715-1415**
  - **Phone # 394-1234/2751**

# **Hearing Conservation Program Requirements**

## **■ Noise Surveys**

- Conducted by Bioenvironmental Engineering to identify hazardous noise environments**

## **■ Hearing Tests**

- Initial, annual, close scrutiny and termination**

## **■ Education**

- Initial**

- Information Provided by PH - this briefing**
  - Briefing given by Supervisors**

- Annual**

- Provided by your supervisor**

## **■ Personal Protective equipment**

- Your responsibility to wear when needed**

# **Failure to Comply**

- PH documentation in medical record and shop folder; to prevent future claim against the AF
- **Administrative/disciplinary action**
  - Active Duty: UCMJ
    - Oral admonishment
    - Letter of reprimand
    - Article 15
  - Civilians: AFR 40-750. Discipline and Adverse Actions
    - Oral admonishment
    - Letter of reprimand
    - Suspension

# Any Questions?

